Thermo Scientific
Barnstead LabTower EDI
Water Purification Systems

smart H_2O

for you, and your science

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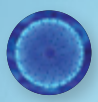
Thermo Scientific Barnstead LabTower EDI water purification systems

Pure water is elemental to the success of your experiments. But finding the right water system for your research goes deeper than water quality alone. You need a smart choice that supports both your science and your budget – on day 1, and with every cartridge and filter change. One that reflects 130 years of innovations, like effortless cartridge changeouts. With a Thermo Scientific™ Barnstead™ lab water system, the only thing you'll have in your water is confidence.

	LabTower EDI
Type 1 Water	
Resistivity at 25°C, MΩ•cm	18.2
Conductivity, µS/cm	0.055
TOC, ppb	1 - 5
Bacterial content, CFU/ml	<1
Particles, 0.22 µm/ml	<1
Flow Rate at dispenser, L/min	1.5
Type 2 Water	
Pure water production at 15°C, L/hr	15 or 30
Resistivity at 25°C, MΩ•cm	15-10
Conductivity, µS/cm	0.067 - 0.1

Suitable for even the most demanding and sensitive applications, Thermo Scientific™ Barnstead™ LabTower™ EDI water purification systems exceed international standards ASTM D11931 Type 1, ISO 3696 Grade 1, and CLSI-CLRW, delivering ultrapure 18.2 MΩ•cm water with consistent quality. High purity Type 2 water is also available from the 100 L integrated reservoir.

Type 1 Applications


Cell and tissue culture

PCR, DNA sequencing

Electrophoresis,
TOC Measurements, IC

HPLC, GC-MS, ICP-MS, AA

Type 2 Applications

Rinsing lab glassware

Supplying general lab equipment

Preparing and diluting
buffers, reagents, and media

Two systems in one

- Unique system with pre-treatment plus polisher to produce both Type 1 and Type 2 water
- Type 2 water is stored in the integrated 100 L high purity water reservoir
- Water system sits on top of the reservoir saving critical bench space

Two ways to draw water

- Dispense ultrapure water directly from the system via the dispenser with sterile 0.2 µm filter. The water quality is measured immediately prior to the dispensing point
- Type 2 water is accessible from the reservoir, which is an ideal supply for lab equipment such as autoclaves

Barnstead LabTower EDI System Features

Smart consumables

- Validated 0.2 µM final filter with folded membrane can be autoclaved up to 5 times
- Standard UV photo-oxidation at 185/254 nm reduces organic compounds in the water to ultra-low levels as well as microorganisms and their metabolites

Easy-to-operate

- Dispensing is easy and features variable speed controlled flow
- The display can be tilted for optimal reading

Compact, stylish, mobile

- Free-standing unit takes up no bench space
- Easily relocated with bottom-mounted rollers
- Continuous monitoring of all critical parameters
- Recirculation pump protects purified water in tank from bacterial growth during standstill

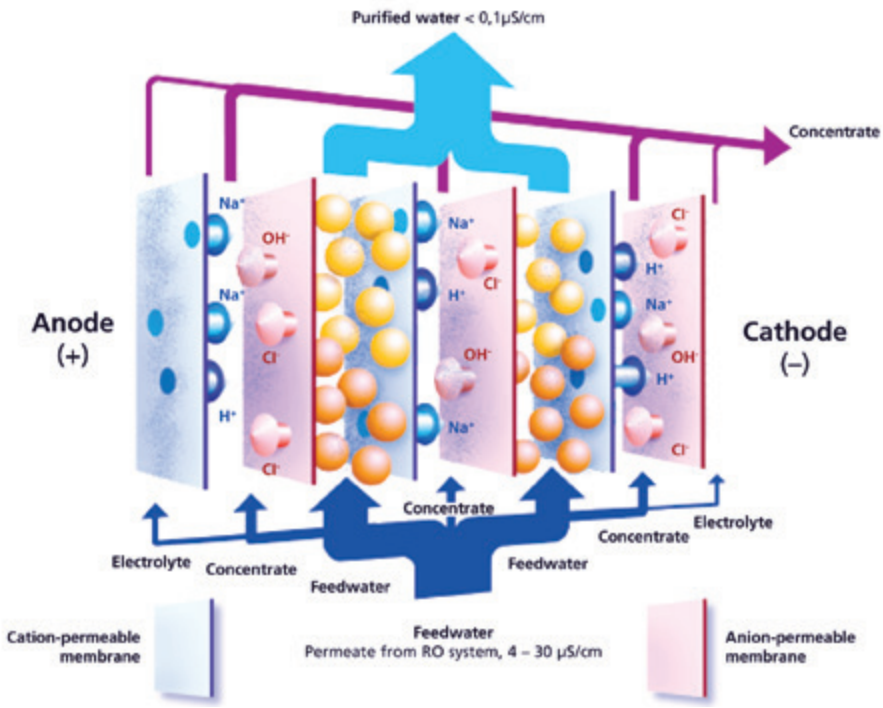
GLP-compliant

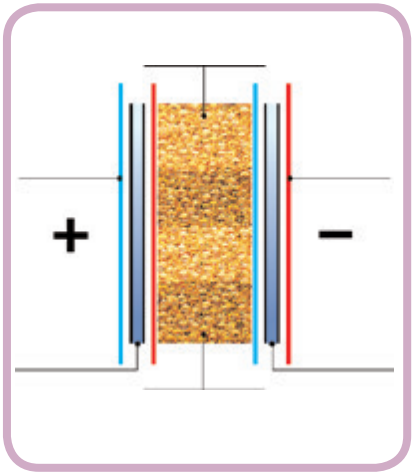
- Real-time clock and code-protected operating system prevents unauthorized changes to system settings
- RS-232 interface with adjustable send-interval for safe data transfer of all measured data, faults, date and time to a PC computer or log printer
- Digital microprocessor control automatically monitors and stores faults from the last four weeks
- USP-compliant conductivity measurement with temperature compensation that can be switched on or off

100 L Integrated polyethylene reservoir safely stores Type 2 water

- Integrated reservoir provides 100 L of purified water storage
- Automatic water recirculation in the reservoir moves water across a special polisher module ensuring fresh Type 2 water on demand
- High-purity water reservoir outlet for convenient drainage
- Efficient cleaning and disinfection enhanced by conical bottom design for completely emptying reservoir
- Sterile vent filter and reservoir overflow prevents internal contamination by microorganisms from the surrounding air
- Optional CO_2 adsorber prevents CO_2 adsorption into the water, to help save cartridge life
- Highly visible reservoir volume display on LabTower system controller
- Customize volume stored in the reservoir via the controller

EDI Technology

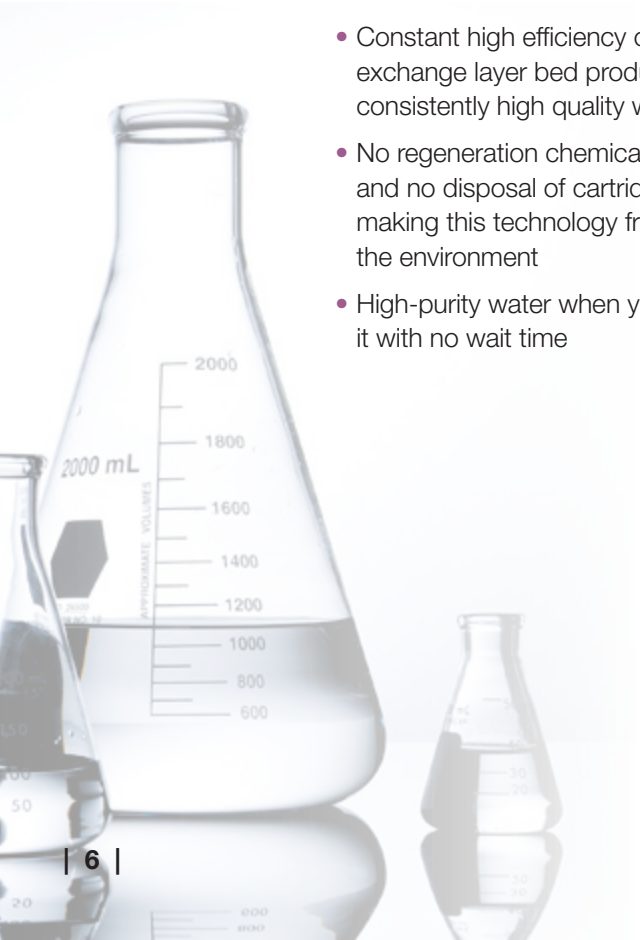




Electrodeionization, EDI, unites two proven technologies for producing ultrapure water: Electrodialysis and ion exchange. In contrast to conventional ion exchange in which resins must be either chemically regenerated or the cartridge discarded, EDI utilizes an electric current for continual resin regeneration.

Technologies that keep you one step ahead

- Constant high efficiency of the ion exchange layer bed produces consistently high quality water
- No regeneration chemicals required and no disposal of cartridges, making this technology friendly for the environment
- High-purity water when you need it with no wait time



How EDI works

Several layers of ion selective membranes are situated between an anode and a cathode. Layered ion exchange resin beds and concentrate chambers are alternately positioned between them.

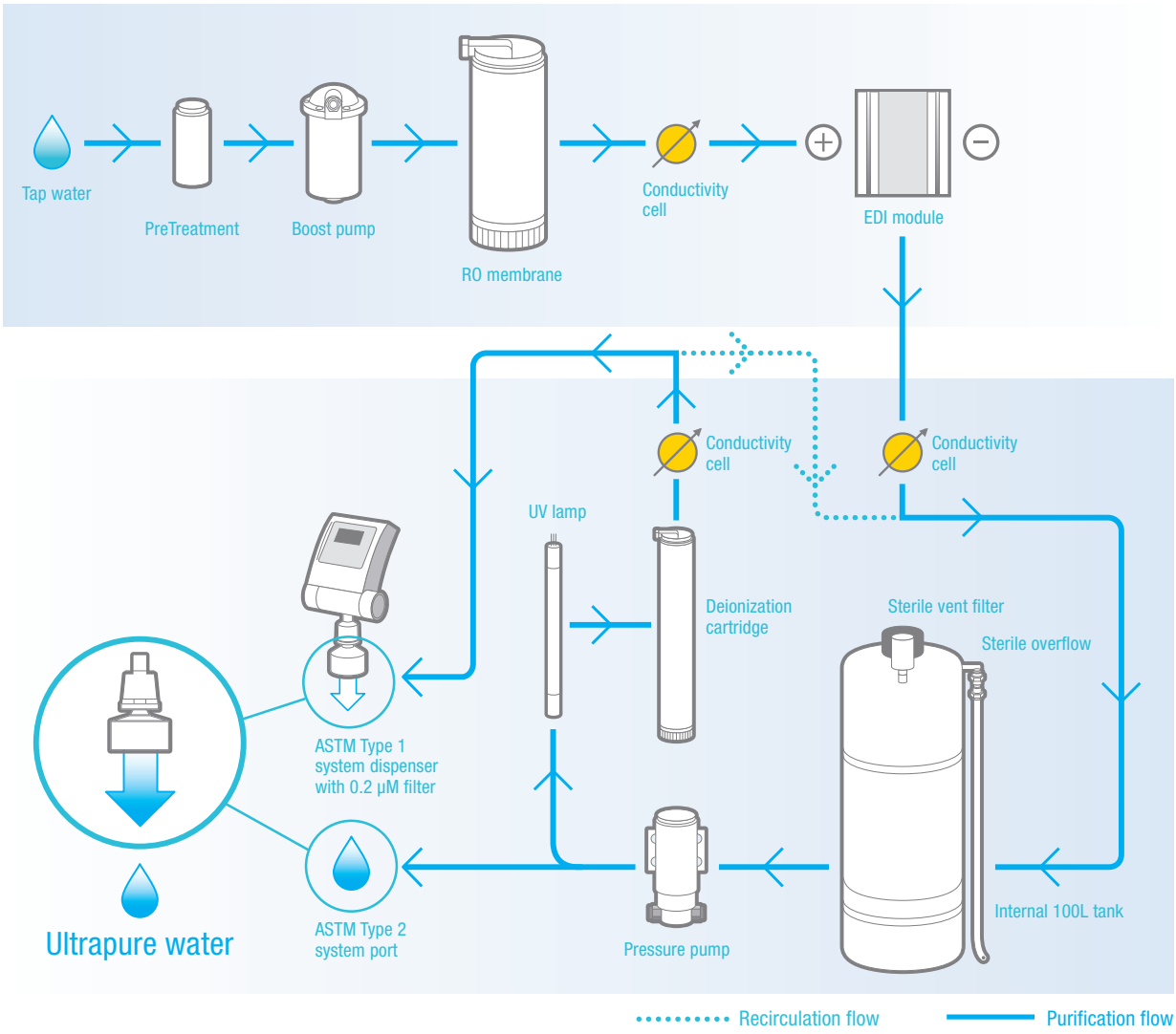
On applying an electric voltage, water (H_20) is split into H^+ and OH^- in the cell.

The H^+ and Na^+ cations can migrate through the cation permeable membranes, anions through the anion permeable membranes.

The ions migrate in the direction of the applied voltage, i.e. anions to the positive pole (anode), cations to the negative pole (cathode). The water ions that migrate through an ion exchange chamber displace salt ions retained by the ion exchange resins and so continually regenerate the resins.

The salt ions migrate through the appropriate ion selective membranes into the concentrate chambers and are flushed out by water. As all concentration chambers are flushed, excess H^+ and OH^- ions can again combine to form H_20.

The following diagram illustrates the flow of water through the components of a Barnstead LabTower EDI water system.



	LabTower EDI
Product Dimensions H x W x D, mm (in.)	1500 x 450 x 580 (59 x 18 x 23)
Product Weight kg (lbs.) w/o water	66 (146)
Shipping Dimensions H x W x D, mm (in.)	1210 x 1200 x 800 (48 X 47 X 32)
Shipping Weight kg (lbs.)	77 (170)

Feed Water Requirements*	
Source	Potable tap water softened or hardness stabilized.
Conductivity, µS/cm	< 1000
Silt Density Index (SDI)	< 3
pH Range	4 - 11
Temperature, °C	2 - 35
Pressure, psi (bar)	29 - 87 (2 - 6)

* Please see user manual for complete list of feed water requirements.

ordering information

LabTower EDI System Options	LabTower EDI 15	LabTower EDI 30
All systems include an ultrapure polisher cartridge, UV lamp, RO membrane, RO pretreatment filters (5 µm filter and hardness stabilizer), EDI module, sterile 0.2 µm filter, 10" 1 µm filter (tank outlet) and pressure regulator.	50132395	50132396

Required Accessories		
Sterile overflow for reservoir Prevents reservoir contamination of bacteria and other micro-organisms.		50132714
CO_2 adsorber + sterile filter, 0.2 µm Combination sterile filter with CO_2 adsorber is designed to prevent CO_2 from entering the tank, to help save cartridge life.		06.5002
Mix Multi Mini water softener Required for hard feed water and/or if silt density index (SDI) is greater than 3. Also required for purchase with a softener is the softener salt, hardness detection kit, and the 5 µm filter with carbon.	120V, 50/60Hz	50129892
	240V, 50 Hz	50130297
Softener salt Required for use with the water softener.	Europe	50129893
	North America/Latin America Asia Pacific	06.2000
5 µm filter with carbon cartridge Required when Mixed Multi Mini is purchased.		06.5201
Hardness detection kit – required with purchase of softener Alerts user when water is no longer softened.	Europe	06.1000
	North America/Latin America Asia Pacific	50134335

Optional Accessories		
Hand dispenser kit Hand dispenser with 3 meter cord that connects to tank (to dispense Type 2 water). Ships with a 0.2 µm final filter.		50138221
Sterile 0.2 µm filter for reservoir outlet		06.5555
Disinfection cartridge Reusable cartridge needed to clean the water purification system.		09.2201
Qualification documents (IQOQ)		IOQDOCE50133916
Printer Utilizes RS-232 interface for safe documentation of all measured values and faults with date and time in compliance with GLP-Guidelines.	120V, 50/60Hz	AY1137X1
	230V, 50Hz	09.2207

Replacement Consumables			
Ultrapure polisher cartridge		09.2005	
CO_2 adsorber + sterile filter, 0.2 µm, for tank		06.5002	
Hardness stabilizer, 5" with 5 µm filter		06.5204	
Sterile 0.2 µm filter for system		09.1003	
UV lamp for the system		09.2002	
Cleaning solution	Europe/Asia Pacific	09.2202	
	North and South America	CMX25	
Reverse osmosis membrane		22.0046 (requires 2)	22.0087 (requires 2)

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